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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,657	10/10/2000	Vipul Shah	26530.23(IDR-464/5)	3912

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EXAMINER

NGUYEN, DUSTIN

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/685,657

Applicant(s)

SHAH ET AL.

Examiner

Dustin Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5 and 7-12 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 13-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-5, 7-18 are presented for examination.

Response to Arguments

2. Applicant's arguments filed 09/27/2004 have been fully considered but they are not persuasive.
3. As per remarks, Applicants amended claim 1 to include the limitation of "wherein the queuing includes applying a queuing model to packets in the hash bucket to prevent packets from a particular connection from utilizing an excessive amount of the processor's time". The limitation is rejected as shown below.
4. As per remarks, Applicants' argued that (1) Gupta and Stanback fail to disclose "one or more hash buckets to a processor timer thread".
5. As to point (1), Stanback discloses a request dispatcher thread capable of spawning multiple child threads and the child threads query the cache [i.e. hash table] [Figure 3, Abstract; and col 4, lines 55-col 5, lines 3].

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6. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to combine the references because it would allow to introduce multi-threaded environment which enables the system to handle heavy network traffic to prevent network congestion.

Specification

7. The disclosure is objected to because of the following informalities: no indication of "hash bucket 15" in Figure 1 as mentioned in specification page 4, lines 23.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et al. [US Patent No 6,658,565], in view of Stanbach, Jr. et al. [US Patent No 6,449,657].

10. As per claim 1, Gupta discloses the invention substantially as claimed including a method for balancing a workload for a plurality of processors in a multiple processor computer system, the system designed for processing a plurality of packets from a plurality of connections, the method comprising:

assigning a packet to a hash bucket determined by performing a predetermined hash function [Figure 3; and col 5, lines 26-47]; and

queuing the hash bucket to a processor so that the workload of all the processors are balanced [Figure 4; and col 5, lines 49-col 6, lines 10], wherein the queuing includes applying a queuing model to packets in the hash bucket to prevent packets from a particular connection from utilizing an excessive amount of the processor's time [i.e. even and odd bucket value] [Figures 3 and 4; and col 5, lines 42-col 6, lines 10];

wherein the hash function relates to a predetermined number of hash buckets [col 6, lines 11-19].

Gupta does not specifically disclose wherein a plurality of packets from different connections can be assigned to the same hash bucket.

Stanbach discloses wherein a plurality of packets from different connections can be assigned to the same hash bucket [Figure 3; col 5, lines 1-3; col 6, lines 44-60; and col 17, lines 19-30].

It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Gupta and Stanbach because Stanbach's teaching of multiple connections would allow to reduce the processing time so that the system can be performed in a more efficient manner.

11. As per claim 2, Gupta discloses wherein the step of assigning includes a step of using a source address, source port, destination address, and destination port parameters from the header section of the packet to identify the hash bucket [320, Figure 3; 420, Figure 4; and col 7, lines 19-48].

12. As per claim 3, Gupta discloses wherein the hash function is designed to assign a plurality of packets from a connection to the same hash bucket [col 5, lines 37-48].

13. As per claim 4, Gupta discloses monitoring the workload of each processor involved in the system [col 2, lines 43-46; and col 4, lines 54-61].

14. As per claim 13, Gupta discloses the invention substantially as claimed including a method for processing a plurality of connections with a plurality of timer threads by a plurality of computer processors in a multiple processor computer system, the method comprising:

providing a plurality of hash buckets related to a hash function [330, 340, Figure 3; and col 5, lines 26-47];

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mapping a connection to one of the hash buckets [col 5, lines 43-48; and col 5, lines 60-col 6, lines 10].

Gupta does not specifically disclose

assigning one or more hash buckets to a processor timer thread based on a workload thereof so that the processor only processes the connection mapped to the assigned hash bucket, wherein a plurality of timer threads for the computer processors thus process a plurality of connections simultaneously.

Stanbach discloses

assigning one or more hash buckets to a processor timer thread based on a workload thereof so that the processor only processes the connection mapped to the assigned hash bucket [Figures 3 and 11; and col 6, lines 44-col 7, lines 12],

wherein a plurality of timer threads for the computer processors thus process a plurality of connections simultaneously [col 4, lines 47-53; and col 7, lines 9-12].

It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Gupta and Stanbach because Stanbach's teaching of timer threads would allow to multiple connections to be processed which increases system performance and reduces processing time.

15. As per claims 14 and 15, they are rejected for similar reasons as stated above in claims 4 and 3.

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16. As per claims 16-18, they are program product claimed of claims 13-15, they are rejected for similar reasons as stated above in claims 13-15.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Nguyen whose telephone number is (703) 305-5321. The examiner can normally be reached on flex.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Follansbee John can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Dustin Nguyen
Examiner
Art Unit 2154